

Table 1. Demographic characteristics of the study population	
Age (years)	65.0 ± 1.5
Gender	
Male	50.0%
Female	50.0%
Education (years)	12.0 ± 1.0
Marital status	
Married	60.0%
Single	40.0%
Occupation	
Retired	70.0%
Unemployed	30.0%
Income (USD/month)	1,200 ± 200
Health status	
Good	60.0%
Fair	40.0%
Poor	0.0%
Comorbidities	
Hypertension	30.0%
Diabetes	20.0%
Cholesterol	10.0%
Smoking status	
Smoker	10.0%
Non-smoker	90.0%
Alcohol consumption	
Drinker	5.0%
Non-drinker	95.0%

5           a shell configured to be removably installed  
over a portion of a gas cap;

a message-bearing element supported on the shell and configured to display a message formulated to influence the vehicle operator to take some action.

2. A gas cap cover device as defined in claim 1 in which the shell comprises a plastic wall shaped to complement the shape of a portion of the gas cap, the connector comprising a detent formed into the shell and configured to engage at least one surface of the gas cap to allow an operator to apply turning force to the cap through the cover device.

4. A gas cap cover device as defined in claim 1 in which the connector includes a handle

portion configured to fit over and engage a handle portion of the gas cap.

5. A gas cap cover device as defined in claim 1 in which the shell includes at least two retainer tabs extending integrally and radially inward from around a bottom edge of a circumferential sidewall portion of the shell, the tabs configured to flex upwardly as the cover device is pushed down over a gas cap and to snap back once they have been pushed passed a bottom edge of the gas cap.

6. A gas cap cover device as defined in claim 1 including a circumferential sidewall having a rolled-under profile configured to circumferentially distend as the cover device is pushed over a cap then to snap back as the sidewall is pushed past a lower edge of the cap.

7. A gas cap cover device as defined in claim 1 in which an upper surface of the cover device includes a hole configured to align with and leave uncovered a refueling receptacle in a gas cap to be covered.

8. A gas cap cover device as defined in claim 7 including an electromagnetic energy transmitter supported on the shell and configured to aid in directing a robotic fueling device.

9. A gas cap cover device as defined in claim 1 further including a receptacle configured to engage a wrench and to transmit turning forces

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from the wrench to the cap through the cover device.

10. A method for reducing emissions from 5 automotive vehicles; the method including the steps of:

providing an automotive vehicle having a fuel tank and a fuel tank fill tube in fluid communication with the fuel tank;

10 providing a replacement gas cap configured to close the fuel tank fill tube, the replacement gas cap including a good quality sealing surface capable of sealing the fuel tank fill tube against fuel vapor leakage;

15 providing a message-bearing element bearing a message worded to remind an automotive vehicle operator to accomplish a task related to vehicle emission reduction;

providing the message-bearing element on the 20 replacement gas cap;

removing any existing gas cap from the fuel tank fill tube; and

installing the replacement gas cap in a sealing relationship on the fuel tank fill tube.

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11. The method of claim 10 in which the step of providing a message-bearing element includes the step of providing a message recommending accomplishment of one or more tasks 30 selected from of a group of tasks including: replacing the gas cap, accomplishing vehicle maintenance, purchasing a product, purchasing a service, inspecting the vehicle for safety problems, and testing vehicle emission levels.

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12. The method of claim 10 in which the step of providing a message-bearing element includes the step of providing a gas cap cover device on the replacement gas cap, the cover device  
5 bearing the message and including a shell configured to be disposed over a portion of a gas cap and a connector supported on the shell and configured to engage the gas cap and cause the gas cap to rotate when the cover device is rotated.

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13. The method of claim 10 in which the step of installing the gas cap is accomplished before the step of providing the message-bearing element.

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14. The method of claim 10 including the additional step of repeating the steps of claim 10 for each of a plurality of automotive vehicles as part of a gas cap exchange program.

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15. The method of claim 14 including the additional steps of:

estimating vehicle emission reduction due to replacement of leaking or missing gas caps; and

25 claiming a corresponding quantity of Mobile Emission Reduction Credits.

16. The method of claim 15 including the additional step of selling the Mobile Emission  
30 Reduction Credits to a pollution point source to help fund the gas cap exchange program.

17. The method of claim 15 in which the step of estimating vehicle emission reduction

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includes the steps of:

testing old replaced gas caps to determine their individual fuel vapor leakage rates;

calculating the total projected tonnage of fuel vapor that leaking and missing caps would have released into the atmosphere had they not been replaced; and

calculating a total Mobile Emission Reduction Credit value by multiplying the projected tonnage of fuel vapor emissions by a predetermined present value of a single Mobile Emission Reduction Credit.

18. A method for advertising products and services to automotive vehicle operators; the method including the steps of:

providing an automotive vehicle having a fuel tank, a fuel tank fill tube in fluid communication with the fuel tank, and a gas cap configured to close and seal the fuel tank fill tube;

providing a message-bearing element on the gas cap, the message-bearing element configured to display an advertising message.

19. The method of claim 18 in which the step of providing a message-bearing element includes the step of providing a message on the message-bearing element that recommends accomplishment of one or more tasks selected from of a group of tasks including: replacing the gas cap, accomplishing vehicle maintenance, purchasing a product, purchasing a service, inspecting the vehicle for safety problems, and testing vehicle emission levels.

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20. The method of claim 18 in which the  
step of providing a message-bearing element  
includes the step of providing a gas cap cover  
device comprising a shell configured to be disposed  
5 over a portion of the gas cap, a connector  
supported on the shell and configured to  
rotationally engage the gas cap and cause the gas  
cap to rotate when the cover device is rotated, the  
message-bearing element being supported on the  
10 cover device.

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